

We suspect he might be too embarrassed to do so.

Mr. Buchan said that *Resplendent* is one of the first boats to use this net and that Skipper Forman had fished Keenfisher nets for a number of years. He has often tried

Sales rose to £229 a kit and one merchant estimated that they would be selling for £3 a lb. in the London area. Coley, which has steadily been in-

"We're the country that's contributing most to the EEPond" and it is we who should have control over who fishes what, how much they are allowed to take and where

Extended fishing limits are the only practical way to conserve fishing stocks, provided that the government which assumes responsibility has the will to conserve the fish.

Mr. G. H. Elliot, vice chairman of Christian Salvesen Ltd. has put this view forward to the Common-

that investment in what
already a high-risk industry
would certainly be choked

It is he prepared to eliminate policy in the UK, even though it would be a tough and unpleasant task.

SKIPPER David Bedford is pictured (above) in the wheelhouse of the Lowestoft stern trawler *St. Patrick* which came close to earning £1 m. this year. The Colne Fishing Co. trawler completed her year's trips with a total grossing of £241,187. She spent 184 days at sea and landed 100,335 stones of fish. The success of the trawler is now being fitted out for catching meakoel and Christmas. It is very unlikely any other trawler will beat *Patrick's* record grossing for 1976.

'VIGRI'. Built in Poland for Icelandic owner.
KMR6 Major engine developing 2169 bhp at 4100 rpm

HAWKER SIDDELEY
MIRRELES BLACKSTONE DIESEL
MIRRELES BLACKSTONE LIMITED, HAZEL GROVE, STOCKPORT, CHESHIRE
Telephone: 061 483 1000 Cables: MIRRELES MANCHESTER Telex: 867314
WORKS, STOCKPORT AND STAMFORD
For further information, enquiries and orders, please write to the sales and service
department, Hawker Siddeley, 100, Victoria Road, Birmingham B2 4BA

ALL OUR NETS ARE MADE UNDER THE PERSONAL SUPERVISION OF PETER BUCHAN
OUR NET DEPT. MANAGER
To order your KEENFISHER NET contact the above or our Sales Rep. Campbell Stephen
(ex Skipper MB Sustain) who will be delighted to discuss your requirements
(Telephone No. 2828)

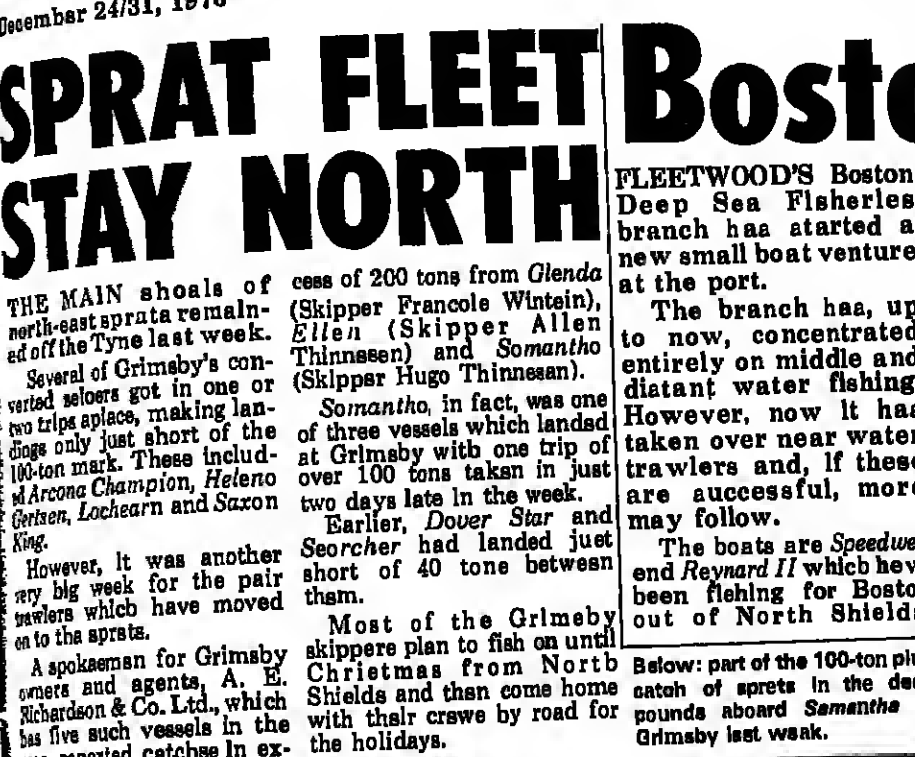
هو الله عز وجل

John Burgess' Log

Two factors effect the size of a hook: its pattern and the width of its base. (Continued)

Hook sizes of different Flatted or spade hooks are better for use with longlines

Below: part of the 100-ton pile catch of sprats in the deep pounds aboard *Samantha Grimsby* last week.



On the day of London Town's landing came a notable catch from the pocket trawler *Forwards* (Skipper Bill Phillips). This stalwart of the fleet hit a good seam of cod

A BLACK AND EDDINGTON GROUP COMPANY

galvanized steel piping and covered with netting designed for use with buoyant walkways.

MARINE FISHING SUPPLIES

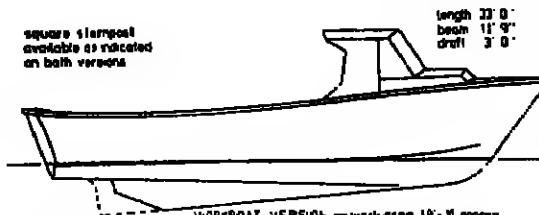
Port Causeway · Bromborough · Merseyside · U.K.
Tel: 051 334 6461 Telex 628387

SCOTLAND TEL. ST. MONANS 209

LOCHIN MARINE

ROCK CHANNEL RYE SUSSEX
Telephone Rye 3724

Moulded in GRP under ideal conditions to exacting standards, the Lochin "33" hull and superstructures are truly versatile.



Designer: Robert Tucker, A.R.I.N.A.

BARE HULL WEIGHT: 2,300 lbs. approx.

Part fitting out available. Details on request

AS SHOWN AT CATCH '78.

FAST • STABLE • SEAWORTHY

The choice of professionals who know the sea and demand the best.

"TUSKER 33"

A fast G.R.P. sea-going boat for lobstering/sea angling etc.

ONE FOR IMMEDIATE DELIVERY



Designer: Robert Tucker, A.R.I.N.A.

Standard boat: 18' x 11' Self draining deck, 180 h.p. Sabre diesel, 17/18 knots approx. Up to 30 knots with twin installations. Two berths, toilet and cooking facilities. Under deck storage/fish holds. Larger enclosed wheelhouse versions available with g.p.s. side decks. A superb craft built to our usual high standard of craftsmanship, reliability and care for detail.

Cardiff Boat Building Co Ltd

ROATH BASIN, THE DOCKS, CARDIFF, U.K.

Tel. Cardiff (0222) 20034 Telex No. 497181

OVERSEAS AGENTS WANTED

HYDRO-BLITZ

jetstream power washers

Our 1500 PSI model will clean hulls, decks, rigging and fishrooms. Also removes old paint, rust, salt and oil. Gets your cleaning jobs done better with less effort, less cost. And more efficiently. Petrol driven 1000 and 800 PSI models available. Prompt deliveries. Export enquiries welcome. Write or phone

W. J. Reynolds (Equipment) Ltd
99-105 Leytonstone Road, Stratford, London E15.
Tel. 01-534 5768/9

Over a thousand fishermen can't be wrong to choose the

ANSAX

PROPULSION NOZZLE

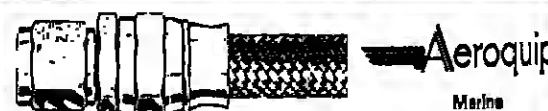


THE ANGLO SAXON MARINE CONSTRUCTION CO. LTD.

4 Creechur Lane
London EC3A 6AY
England

Telephone 01 283 0188
Telex 8811714 Woodship
After Hours 01-584 5708

CONSULT THE EXPERTS



GOODRIDGE AEROQUIP

The Goodridge Aeroquip range of low, medium and high pressure rubber and steel hoses covered with steel and alloy fittings in BS, DIN, SAE and JIS standards for all marine and industrial applications. Used throughout the world on marine, industrial and aircraft applications. Goodridge hoses are supplied from stock for all pressures and fittings. Offering an exceptionally high degree of pressure, abrasion resistance, high pressure resistance, vibration and abrasion — Aeroquip is a must for the fisherman.

GOODRIDGE (U.K.) LTD.

Collins Road, Totnes, Devon TQ9 8PJ. Tel. (0803) 862007

BOAT BUILDING TIMBERS

- Surtas of Dek, Larch, Iroko and Dek Crooks all sawn through and through to any thickness.
- Kiln dried and machined Yeng Decking.
- Complete sets of Oak frames bevel sawn to your patterns.
- Delivery to all parts Scotland, England and Ireland.
- Delco spruce poles for derricks etc.

W. S. BARCHARD & SON LTD.

WEST COURT STREET, HULL

Tel: Hull 0482-25588 (5 lines) Telex: 52424

FISHERMEN'S MISSION

SERVING and CARING

For Shipwrecked, Sick, Distressed, Disabled, Retired and Sea Going Fishermen their Wives, Widows and Children

THIS IS OUR BUSINESS

Will you share in this ministry by sending a generous donation to Royal National Mission to Deep Sea Fishermen

43 Nottingham Place,

London W1M 4BX

Chairman: Admiral Sir Charles Madden, St. G.C.S. D. Secretary: J. C. Lewis Esq., O.B.E., J.P., F.C.S.



Patron: H.M. The Queen

55 years constant service to fishermen and their families

December 24/31, 1978

fish handling

PROCESSING AND MARKETING

LIQUID FISH

A BREAK-THROUGH into the production of liquid fish protein is now at an advanced stage on Humberside. For several years liquid fish protein as an animal feed has been assuming growing importance in countries like Denmark and Holland where fishing and farming are major industries.



Animal protein pilot scheme for Grimsby

British interest in the process has so far been minimal and confined largely to various enthusiastic research establishments, but all this could change if permission for a pilot scheme is granted to Cosalt Ltd. at Grimsby.

For generations this company has pioneered scores of new ideas of benefit to the fishing industry. As usual, it has gone into this project very thoroughly and is now only waiting for the go-ahead from Grimsby Borough Council and the British Transport Docks Board to launch the pilot scheme on Grimsby fish docks. Modest production would be up to 10-tons daily. The idea is to evaluate the viability and potential of the process in practice and, then, it would be decided whether to apply for building permission to erect a full-scale plant on Grimsby docks. This, it is hoped, would stimulate similar developments in this new source of high protein elsewhere, particularly at other Cosalt-based ports.

The main advantages of the production of liquid fish protein over present methods of reducing white fish offal to meal are the ease of handling the end-product — and the virtual elimination of any offensive smells.

Cosalt's general manager, Mr. A. B. Swain, told Fishing News that the plan to manufacture liquid fish protein, also called fish silage, had already aroused a great deal of interest among pig breeders on Humberside. Mr. Swain explained that they grew just as fast on the liquid diet as on ordinary meal. The protein can also be fed to cattle and poultry, but the Cosalt scheme is directed specifically at pigs at this stage.

Ticket charge

GRIMSBY Council is trying to slap a charge on fish merchants for issuing health certificates on exports to France. The Council says the certificates are costing £50 a week.

Mr. K. Beeken, secretary of the Grimsby Fish Merchants' Association Ltd., told Fishing News that he had written to the council saying that they had been pushed into the situation in the first place and considered it an imposition to have charges for the work thrust upon them. Mr. Beeken said he was hopeful that the Council would not press the matter.

Scots fish plant clash

A DECISION by a fish processing firm not to attend or be represented at a planning inquiry into its application for a plant at Arbroath, Scotland, has been described as 'unusual and unfortunate' by Inquiry Reporter, Arthur James Hunt.

The inquiry held last week at Arbroath Library — was called by the Secretary of State for Scotland to settle a clash between Angus District Council, which approved the application, and local residents who opposed it.

The firm, R. R. Spink & Son, had hoped to open a fish processing plant at 12/14 West Newgate to expand its present business of Sengate. It had informed the district council that it intended to fillet and skin fish at West Newgate.

Fish gutting would continue to be carried out at Sengate. Local residents had opposed the application as the area is basically residential with small cottage industry in the backyards. They had argued that this new plant would be too large to fit in with the traditional cottage industry and would cause problems of noise, traffic congestion and bad smells in the area.

Councillor George Cargill spoke on behalf of the District Council Planning Committee and he pointed out that the committee had approved the application as it would help to keep the local fish industry going after the serious blow of increased hour charges.

Director of Planning, William Ferguson, told the inquiry that he had opposed the application in his report, but that the planning committee had chosen to grant approval after a site visit. Mr. Hunt told the inquiry that he would be viewing the plant at West Newgate and would later make his findings known.

Way into export selling

ONE-DAY courses arranged for firms wanting to break into the frozen fish export business have been proving popular. These courses have been designed specifically for firms which have not previously exported or just dealt with the odd inquiry.

The courses cover all stages, from finding a market to obtaining payment, and are aimed to help firms set up their own simple and sophisticated export operation.

Already a number of one-day 'Export Briefing Courses' have been held for fishing industry and frozen food representatives. Courses can be staged either in London or on the clients' premises and cost around £100.

Details can be obtained from: Mr. F. O. Marsh, Frozen Foods Link, 53a Rutland Gate, London, SW7. Telephone: 01-589-7187.

Ross moves into Kent port

ROSS GROUP has moved right on to the quayside at Whitstable, Kent, to stake a firm claim in the south-east's valuable and increasing landings of prime flats, day-old cod, whiting and roker.

There is also easy access to supplies of estuary herring and spruce. Ross has had a depot at Maidstone, the county town of Kent, for some time but direct contact with fishermen has been limited. But with the south-east still not covered by any producer organisation, the new set up could have real significance for the area.

The move follows Ross policy which has already seen the establishment of depots at Brighton, Bristol, Bournemouth, and Wokingham (Berks). Port depots such as Whitstable will act as distribution centres for Ross frozen fish

and fish products, in this case from Lowestoft, plus prime inshore fish from the Kent ports. However, there is a possibility that local fish may soon be filleted and frozen at Whitstable, presumably to iron out highs and lows in supplies.

Planning permission has been requested for a 60-ton low temperature cold store and a 20-ton chilled store, possibly with two Jackstone freezers and a hand filleting line. An empty warehouse alongside the new Ross offices provides an ideal site.

The man behind this new move is local fisherman and merchant, Vic Davis, who owns the port's biggest and best stern trawler, *Zykla*. For many years he has bought local fish and supplied Kent retailers and Lowestoft market with inshore fish. Now his customers have been taken over by Ross, while he looks after the firm's buying on a commission basis. There is no suggestion at present that Ross activities



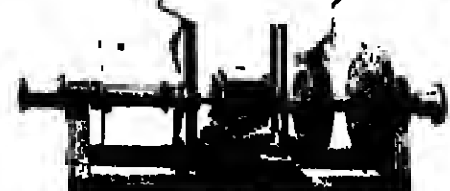
Right: the new Ross offices at Whitstable harbour. The next move is to increase freezing and cold store capacity. Below: Vic Davis (left), the fisherman who became agent, and then buyer, for the new Ross set-up.

should extend to shellfish, although this is the home of the Gilson's cockle business, Cardium Shellfish and Seaside Shellfish Ltd. The latter specialises in oyster broods.

Right: the new Ross offices at Whitstable harbour. The next move is to increase freezing and cold store capacity. Below: Vic Davis (left), the fisherman who became agent, and then buyer, for the new Ross set-up.

Right: the new Ross offices at Whitstable harbour. The next move is to increase freezing and cold store capacity. Below: Vic Davis (left), the fisherman who became agent, and then buyer, for the new Ross set-up.

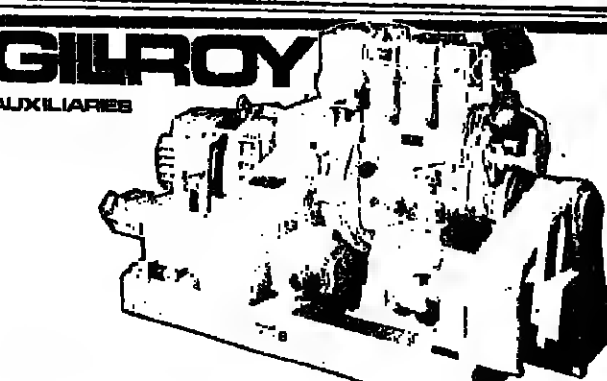
MORRIS



Hydraulic or belt drive. Standard drum capacity 120 lsbome of 1 1/2 in. wire. Larger capacity drums made to order. Suitable for boats 25ft. upwards.

Details from **LESLIE G. MORRIS**

40 CENTRAL AVENUE, TELSCOMBE CLIFFS, SUSSEX.
Tel. Oay Newhaven 3484 Evenings Peacehaven 4801

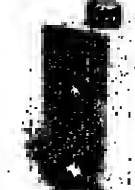


Comprehensive range of auxiliaries designed and built to suit individual requirements. For further details write to:

Wilmex Engineering Services (Aberdeen) Ltd.
Craigshaw Road West Tullos Aberdeen

PLASTIC SLEEVING & HOOKS FOR MACKEREL

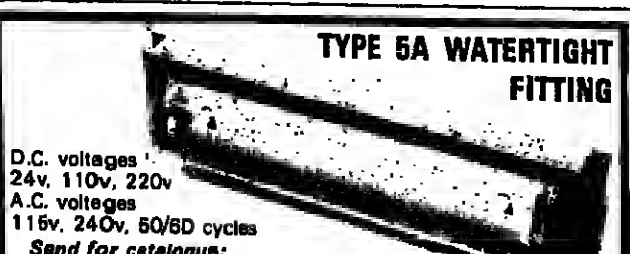
HYDRAULIC RESERVOIRS



SPENCER-CARTER

KERNICK ROAD, PENRYN, CORNWALL

Telephone: Penryn (0328) 73423. Telex: 45488



D.C. voltages: 24v, 110v, 220v
A.C. voltages: 115v, 240v, 50/60 cycles
Send for catalogue:

Dept. LN, **SONDIA LIGHTING LTD.**,
45 PORTLAND PLACE, HULL, HU2 8QP

Telephone: 0482 22353

Manufacturers of Marine Lighting Fittings

ALEXANDER NOBLE & SONS LTD.

BOATBUILDERS - GIRVAN

Quotations and designs for new vessels — repairs on our own slipways up to 150 tons — all types of machinery installed.

Ring **TEL: GIRVAN 2223**



WAYDON Mouldings Ltd.

LOBSTER POTS Moulded in Polypropylene giving a very tough pot. Detachable bases for interlocking during carriage. Available ex-stock!!! at £4.20 + VAT + Carriage

Finest Station Road, Finedon Wellingborough, Northants.

For delivery in Great Britain contact Cosalt Holidays, Marine, 100, The Strand, London, W.C.2. Tel. 01-477 3111

DLING, processing and marketing

NON-RETURN KIT ON TRIALS

WITH THE fishing industry facing ever increasing costs, fishermen and buyers are considering the use of non-returnable containers. They could be used for boxing catches at sea and transporting fresh fish on ice to the processor or other markets.

Now boxing-at-sea trials are taking place with a specially developed fibreboard container.

The majority of fishermen still use traditional wooden boxes for boxing catches at sea and they pay a hire charge to salesmen. However, the loss of boxes is so extensive that in order to recoup some of the expense the hire charge has to be high.

Buyers, too, are faced with the loss problem and they also have to pay heavy return transport costs for empty boxes.

About a year ago the South London-based firm of DRG Merton Packaging was asked by a fishermen's association if it could design a non-returnable container for boxing catches at sea. At the same time the firm was approached by a large processor to produce a non-returnable box to carry fresh herring fillate under ice to the Continent. Subsequently the firm introduced the Merstone-4 Fish Kit which represents a new concept in the design of fibreboard containers.

It is open-topped and based on the design of the well established wooden box. Measuring 672 x 376 x 150mm, it is claimed to have a capacity for four tonnes of fish.

The box is wedge-shaped to prevent the upper box from slipping into the lower one when they are stacked and it has girder-type side flanges and shaped corner posts to give stacking and carrying strength.

Like the smaller Merton non-returnable boxes already in wide use among fish merchants, the new box is made from 'Pechyderm', a specially treated solid fibreboard coated on both sides with polythene. It is supplied as a single piece of flat board ready for folding and slotting into shape.

A number of inshore boats have used the boxes during short trips of a day or so, but the makers say that the use of the box at sea is still very much in the experimental stages.

Sea trials with the box are under way in Scotland and many fishermen are showing interest.

One boat which has been using the boxes for some months on two-day trips is the Brixham-based seiner *Constant Friend*.

"Although it is early yet to come to any firm conclusions about the value of using these boxes, we do know they have excellent fish keeping qualities," Skipper Tony Rae told *Fishing News*. "Insulation is good and the fish do not move around in the boxes."

So far there has been no big difference in the price paid for the fish, said Skipper Rae. He is also dubious about the ability of the boxes to take four-tones of fish. Using whiting with a good sprinkling of ice, we find they are taking just over the three-stone mark, he added.

There seems to be little doubt about the strength of the box. In an experiment aboard *Constant Friend* one box used three times was still in good condition.



Whiting inside a Merstone-4 Fish Kit aboard the Brixham-based seiner *Constant Friend*.

For boats landing off at a number of ports, the non-returnable container could cut out a lot of time spent hanging round for the traditional box pounds to open, said Skipper Rae.

At present the box is gaining more general acceptance among fish merchants.

Already Fraserburgh merchant John Handry, is using the boxes for sanding headed cod and coley, whole mackerel, sole and haddock under ice on lorries to Billingsgate and Manchester markets. Other merchants are making enquiries about them for transport to the Continent in addition to UK destinations.

DRG Merton Packaging has been making small capacity fibreboard boxes for about ten years and its range of 1, 1.2, 2, 3 and 4-tones non-returnable boxes are in general use among fish merchants in the UK and on the Continent.

The fibreboard is especially treated so that moisture cannot work between the

polythene surfaces and form them apart. Tests have shown that the boxes remain resistant to water immersion for up to 24-hours without the material softening or delaminating.

Flat, cut and creased sheets of 'Pechyderm' are supplied to merchants ready for assembly into boxes by stitching or slotting together at the corners by the specially developed Webster Lock.

About four years ago a one-piece box was introduced which can be folded into shape from a single piece of board.

Boxes are also available with specially shaped drainage holes to allow excess moisture to escape as the ice melts.

In 1972 an upgraded fibreboard named 'Pechyderm II' was introduced. Main feature of this material is the use of a brilliant white polythene coating which enhances the appearance when printed with the merchant's name and graphic design.

Scotland plans giant box pool

SCOTLAND is gearing up for the extensive use of plastic fish boxes.

A steering committee consisting of representatives of fishermen, fish associations, merchants and transport operators has been set up to co-ordinate the introduction of plastic fish boxes into the inshore industry.

A meeting was convened earlier this month at Aberdeen by the White Fish Authority and Mr. J. R. D. Murray, secretary, agreed to act as the committee's independent chairman.

The WFA's advisory services will be available for consultation with committees.

A spokesman for the WFA said that the committee would hold its first meeting in January. They will investigate the replacing of the wooden boxes widely used by the Scottish inshore fleet. It was expected that they would select a suitable plastic box design and prepare plans for a single control box pool.

Mr. Murray said: "Since the initial meeting, the authority's management advisory service

has started work on preparing information on the choice of box design and all systems for control of the distribution and recovery of boxes for the committee's consideration."

In October a party of Scottish inshore skippers and trade representatives travelled to France on a visit sponsored by the plastic firm Allibert.

The delegation, impressed by the use of plastic boxes used on the French market, agreed there is an urgent need for change in Scotland.

GIVE US A CALL WHEN YOUR BOAT COMES IN

As any fisherman worth his salt will tell you the job has just started when the catch is in. And that's where we start.

We provide an impressive list of services, both to professional trawler operators and to fish wholesalers and distributors.

We operate a total of twelve cold stores throughout Britain, seven with fish freezing facilities, from Inverness to Lowestoft.

We realise quantity is not everything, which is why we provide a top quality service producing a top quality product monitored by our trained quality control staff.

And that doesn't just go for freezing and storage.

We will take your products using our own refrigerated fleet of over 400 vehicles throughout the U.K. and Europe, and deliver them just where you want them.

All you have to do is tell us where to go, and like so many of our services, each distribution operation is tailor-made to your needs.

Cold Stores

Aylesford - 66,000 cu metres
Foral Road Aylesford, Kent
Telephone 01822-70771
Telex 965244

Dorchester - 104,000 cu metres
Berry Hill Industrial Estate
Dorchester, Dorset DT1 1JH
Telephone 01306-21441
Telex 331491

Dunfermline - 49,000 cu metres FFR
Kingsway, West London
Telex 331491

Edinburgh - 12,500 cu metres FFR
Wetherhill, Edinburgh EH1 1JH
Telephone 0131-225000
Telex 331491

Exeter - 68,000 cu metres
Exeter Way, Exeter EX2 1JH
Telephone 0392-57111
Telex 331491

Farnborough - 170,000 cu metres FFR
Ludgate Road, Farnborough
South Hampshire
Telephone 0472-55231
Telex 52243

Hull - 88,000 cu metres FFR
Brighton Street, Hull
North Humberside
Telephone 0482-29844
Telex 52243

Inverness - 25,000 cu metres FFR
Dunrobin Inverness
Telephone 0466-346
Telex 331491

Lowestoft - 204,000 cu metres FFR
Gordon Road, Lowestoft, Suffolk
Telephone 0502-82011
Telex 97368

Peterborough - 76,000 cu metres FFR
Stamford Road, Peterborough
Woodson Industrial Estate, Peterborough
Cambridgeshire Telephone 0733-231118
Telex 32845

P-Fish Freezing P-Processing R-Repairing

Where you can find us:-

Inverness (20 V)

Dunfermline (8 V)

Edinburgh (8 V)

Hull (3 H + 2 V)

Grimsby (7 H)

Peterborough (7 V)

Lowestoft (5 H + Lewia freezer)

V = vertical plate freezer

H = horizontal plate freezer

Transport Depots

Aberdeen
Glenfarg Road
East Tully Industrial Estate
Aberdeen AB11 4BP
Telephone 01224-81441
Telex 331491

Dorchester
Berry Hill Industrial Estate
Dorchester, Dorset DT1 1JH
Telephone 01306-21441
Telex 331491

Dunfermline
Kingsway, West London
Telex 331491

Edinburgh
Wetherhill, Edinburgh EH1 1JH
Telephone 0131-225000
Telex 331491

Exeter
Exeter Way, Exeter EX2 1JH
Telephone 0392-57111
Telex 331491

Farnborough
Ludgate Road, Farnborough
South Hampshire
Telephone 0472-55231
Telex 52243

Hull
Brighton Street, Hull
North Humberside
Telephone 0482-29844
Telex 52243

Inverness
Dunrobin Inverness
Telephone 0466-346
Telex 331491

Lowestoft
Gordon Road, Lowestoft, Suffolk
Telephone 0502-82011
Telex 97368

Peterborough
Stamford Road, Peterborough
Woodson Industrial Estate, Peterborough
Cambridgeshire Telephone 0733-231118
Telex 32845

P-Fish Freezing P-Processing R-Repairing

Where you can find us:-

Inverness (20 V)

Dunfermline (8 V)

Edinburgh (8 V)

Hull (3 H + 2 V)

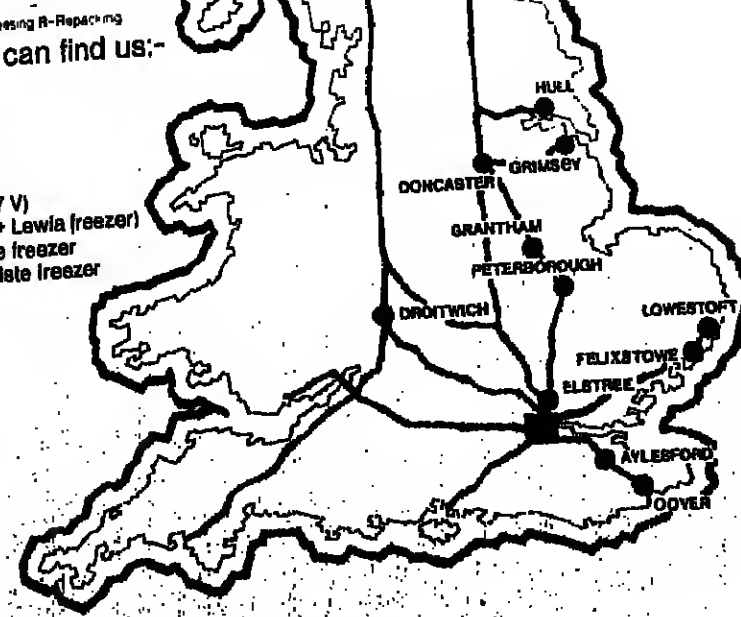
Grimsby (7 H)

Peterborough (7 V)

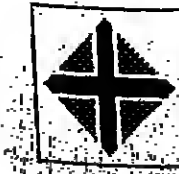
Lowestoft (5 H + Lewia freezer)

V = vertical plate freezer

H = horizontal plate freezer



No other public cold storage company in Britain has facilities as extensive as ours, 60 plate freezers and more than 1.2 million cubic metres of cold storage. We can do bulk freezing in vertical or horizontal plate freezers, produce packs ranging from 5lb to 14lbs, and single freezing if required. Don't hesitate to ask us about other ancillary services you may require, such as block cutting, grading and breaching.



Christian Salvesen (Cold Storage) Ltd.
HEAD OFFICE: 80 EAST FETTES AVENUE, EDINBURGH. TEL: 031-6527501. TELEX NO. 7222

The Merstone-4 Non Returnable Fish Box



The Merstone-4 is a general purpose open-topped fish box for transporting 4 stone of herring or small fish from the port of landing to other markets and processing plants, or to Continental outlets.

It is manufactured from 'Pechyderm', a high quality polythene coated waterproof solid fibreboard. Size 26 1/2 x 14 x 5 1/2" (672 x 376 x 150 mm.), the trisegmented side flanges and shaped corner posts are designed to give carrying and stacking strength. The wedge shape prevents the upper case from slipping into the lower case when stacked.

The Merstone-4 has successfully provided a means of landing fish directly onto the quayside and has the advantage over the conventional returnable fish box of reducing the costs of losses, repairs, cleaning and transportation.

DRG Merton Packaging
1 Merton High St. London SW19 1DQ. Tel. 01 540 9282

(P.L.) DRG Packaging Ltd., A Division of Brunner Corp. (UK) Ltd.

WEA TECHNICAL PROGRESS

FRIERS, institutional caterers and major processors are all showing increasing interest in the possible exploitation of blue whiting as a partial replacement for the more traditional species, particularly cod.

The fish is found close to our own shores in the spring and there is growing evidence that significant catches can also be taken on more distant grounds at other times of the year.

One factor which makes blue whiting such an obvious choice is the similarity in taste to that of cod — in fact, few consumers can tell the difference. But there is more to acceptability than taste.

As the success or failure of the UK blue whiting programme will ultimately depend upon the housewife, the White Fish Authority (assisted by marketing consultants David Elliott and Associates), began a series of acceptability trials in 1975 to find out what she thinks about this new species.

The blue whiting used for the first series of trials were all frozen at sea during the April 1975 exploratory voyage of the stern trawler *Arctic Pioneer*. The fillets obtained were not at prime quality, chiefly because the fish were handled by methods and equipment not designed for this species.

The fish had been frozen into 10cm thick blocks, which

led to distortion of the fish and deterioration during thawing. They were then laboriously filleted by hand, re-frozen in 5 and 7lb. shutter-packs and stored for several months. Also, because the fish were not graded at sea, there was a wide size variation after filleting which gave rise to some problems.

A preliminary trial at Billingsgate market in May 1975 had demonstrated the unsuitability of gutted whole blue whiting for the fishmonger's slab. It was, therefore, decided to concentrate on investigating the acceptability of the filleted fish for the fish frier and for institutional catering use, and also carry out tests using a large number of randomly-chosen housewives as tasters.

The first institutional trials were carried out at hospitals in Wolverhampton, Birmingham, Sunderland and Newcastle in September and October 1975. At each hospital, blue whiting appeared on the staff dining room menus as "whiting" or, more simply, "fried fish", in place of the customary cod.

The fillets, weighing about 65g each, were deep fried in butter and, in one hospital, two fillets per portion were served. The prices charged were the same as for cod.

The blue whiting was readily accepted and no adverse comments were received. Also, apart from some remarks about the small size of the fillets and their off-white colour before cooking, the kitchen staff

GETTING A TASTE FOR BLUE WHITING

were equally satisfied with the fish.

Following the hospital tests, more comprehensive trials involving four schools in the Cambridge and Lincoln areas commenced in February 1976. The aim of the trials was to obtain objective data on the acceptability of blue whiting as compared with cod when served in the same manner on alternate occasions.

Reaction from the school children was obtained by serving deep fried-skin-on fillets and checking the amount of fish returned uneaten. Results were very favourable, with a majority of servings being completely eaten. The only adverse comments were from the kitchen staff concerning the small size of the fillets and, occasionally, about the presence of bones from the dorsal fins.

Although it would be premature to draw firm conclusions regarding commercial

practicability, it can be stated that blue whiting fillets, deep-fried in batter, are readily accepted by both adults and children provided the fillets are as bone-free as possible and well-graded to ensure the maintenance of a fixed portion size.

The National Federation of Fish Friers has also shown strong interest in blue whiting and seven members of its executive council (with shops in Cheshire, Durham, Glamorgan, Lancashire, Northampton and Staffordshire) participated in a six-week trial during February and March this year offering blue whiting as a regular choice.

Initially, sales went quite well and most of the friers reported that blue whiting was enthusiastically received by their customers when sold at or marginally below (1 or 2p per portion) the price of cod. Although towards the end of the trial sales slowed

down somewhat, some regular trade had developed.

The main reason given for the decline in trade was that the remaining fillets were rather on the small side, although some friers overcame this difficulty by frying two fillets together skin-to-skin.

So, there is no doubt that blue whiting is also acceptable when sold by friers and that a trade can be developed, especially in those shops traditionally selling smaller portions. However, the future level of such trade will depend on the provision of graded fillets, preferably at the larger end of the range tested, and the price at which they can be made available.

The trial is now being continued with the 1976 season fillets, using the largest grade available in quantity (60-80g). Four of the shops now report a steady trade, amounting to about 15kg per week of raw fillets at a retail value of

around £2.00 per week.

In parallel with the series of hall tests were held in a further three locations (Bristol, Glasgow and Manchester), using blue whiting from the *Shemara* and *Hebridean* catches of spring 1976.

Whereas the 1975 catch aboard *Arctic Pioneer* was frozen whole at sea, the fish were sent to the fishmongers from the 1976 voyages were landed at Stornoway boxed in ice, or stored in chilled seawater containers. By eliminating the necessity for initial freezing at sea before the fish were gutted and hand filleted, better quality and more robust fillets were obtained.

Because of this and the fact that the colour of the raw fillet is an important factor influencing consumer choice, the 200 housewives taking part in each test were first asked to view blue whiting fillets raw on ice and raw in supermarket-type packs.

They were then asked to taste two samples of the fish, one grilled and one fried, tasting being followed by an interview to determine their thoughts about taste, texture, colour, like and dislike, and likelihood to purchase.

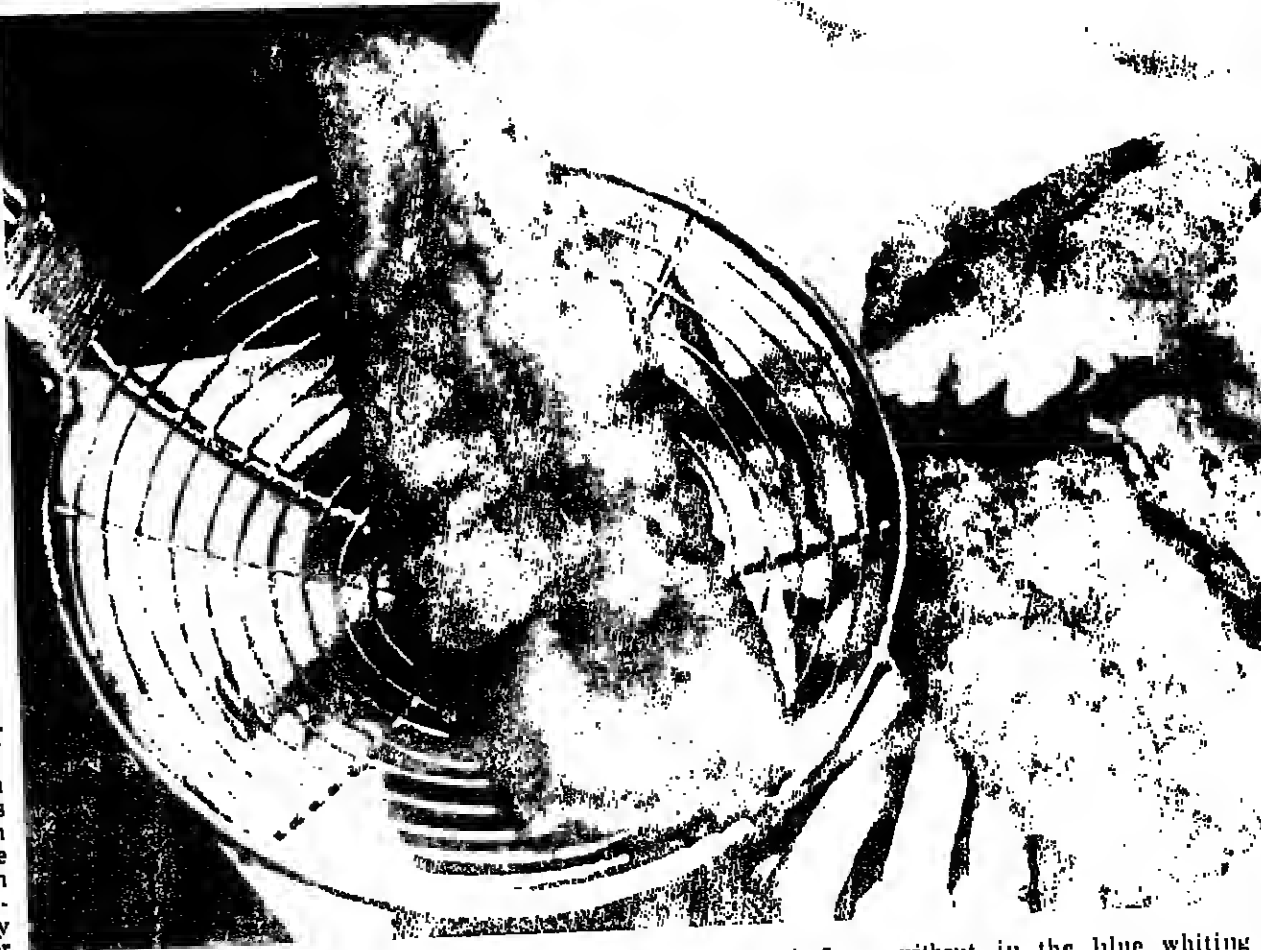
The visual reception to the raw fillets was better in the south than in the north. Of the Bristol housewives 30 per cent thought the appearance was very good, 51 per cent good, and a further 14 per cent rated it as fair. Only 6 per cent gave an assessment of not very good or poor.

Critical

In Manchester, 47 per cent of the housewives rated the appearance as quite good/very good, 31 per cent as fair and 21 per cent as not very good or poor.

Glasgow housewives were more critical than the others — 46 per cent held an opinion of not very good/poor and only 31 per cent found it very good or good.

When asked their overall opinion of the fried blue whiting after tasting, however, there was very little difference between the three areas. Some 93 or 94 per cent in each location rated it fair



Above: customers come back for more blue whiting and chips. The fish sold at only a penny or two less than cod during trials.

to excellent, with only 8 per cent saying it was not very good, and less than one per cent poor or very poor. Similar results were obtained for the grilled fish, with 91 per cent of scores being in the fair to excellent range.

As in the previous tests, each of the housewives interviewed was then asked if they would buy blue whiting wet or frozen from the fishmonger and/or frozen from the supermarket.

The results were slightly less encouraging than those obtained during the first tests, with 33 per cent saying they would definitely buy the fish wet from the fishmonger and 89.7 per cent saying they probably would. Similarly, 19 per cent said they would definitely buy blue whiting frozen and 23 per cent thought that they probably would.

So, although a fresh fillet of blue whiting does assume a firm, white texture while being cooked and high ratings of "better than expected" are achieved after tasting, this does not alleviate the problem that inclination to purchase wet or frozen depends on the appearance of the fish in the raw state.

However, it is still considered that with improved fishing, handling and processing techniques a more attractive raw block fillet can be produced which will appeal to housewives. The WFA is, therefore, to continue with its work to test the responses to raw fillets.

The Golden Fry at Wigan, Lancashire, took part in frier trials.



Based on the high acceptability of cooked blue whiting, there is a strong argument for making the fish available as frozen fillets and blue whiting supermarket packs in freezer sections, particularly when coated with bread crumbs.

Freezing and packaging does alleviate some of the initial appearance problems, and crumbing the fillets would have the added advantage of covering the darker flesh until cooking produces a firm and whiter fillet. Trials with these products will be carried out in the near future.

Fingers

Another product which has undergone recent acceptability trials is the blue whiting fish finger — a product which is considered by many to have greater potential than the blue whiting fillet.

Although machinery is being developed to produce single skinless fillets for laminated blocks, removal of the pinbones without disproportionate loss of yield may prove to be difficult. However, the bones are flexible and small — so small as to be barely noticeable. Nevertheless, the question of bones in fish portions is controversial especially if, as with fish fingers, children form a major proportion of consumers.

As part of its on-going consumer trials, therefore, the WFA recently carried out a series of hall tests in three different areas of the UK in an effort to determine: (i) if blue whiting pinbones could be detected, (ii) the influence of the bones, and (iii) the overall acceptability of the fish fingers. The trials were carried out in Birmingham, Edinburgh and Greater London in late 1976, using a total of 694 housewives in three independent groups of 198 each.

In the first test in each hall, blue whiting fish fingers with pinbones were compared with blue whiting fingers without pinbones. In the second test, blue whiting fish fingers with pinbones were compared with commercial cod fish fingers. And, in the final test, blue

was that less than half of the housewives given the second and third tests could correctly differentiate between cod and blue whiting fish fingers. This may help to explain that, although there was a preference for the commercial fingers, the blue whiting fingers were seldom commented upon in a negative manner. They were generally well liked.

There is little doubt that with better ratching and on-board handling techniques, and improved mechanical processing methods, blue whiting laminated blocks of commercial quality can be produced. When this is achieved it is then up to the major processors to take up the challenge of marketing this fish.

Given a positive approach, there is no reason why blue whiting fish fingers should not become as popular with the children of tomorrow as cod fingers are today.

After these trials, it is clear that blue whiting is acceptable to the British consumer, both in fillet form and as fish fingers, but that there is still room for improvement in quality, grading for fillet size and presentation.

The WFA is, therefore, to continue with its acceptability trials. In addition to the current expansion of the number of frier outlets, and catering trials in schools and hospitals to compare acceptability of blue whiting fillets and fingers with similar cod products, it is to develop suitable forms of frozen presentation (such as breaded block fillets or portion style fillets) for sale through supermarkets and freezer centres.

In all cases the bones found

in the blue whiting fish

fingers were small and fine,

and on the evidence of this

one trial their presence is suf-

ficiently insignificant to ques-

tion the need to make major

modifications to incorporate

removal in the

pinbone processing equipment

currently being developed.

Further trials in school meals

are planned to substantiate

this finding.

One interesting side result

of the trials was that less

than half of the housewives

given the second and third

tests could correctly differen-

tiate between cod and blue

whiting fish fingers. This

may help to explain that,

although there was a prefer-

ence for the commercial

fingers, the blue whiting

fingers were seldom com-

mented upon in a negative

manner. They were gener-

ally well liked.

There is little doubt that

with better ratching and on-

board handling techniques,

and improved mechanical

processing methods, blue

whiting laminated blocks of

commercial quality can be

produced. When this is

achieved it is then up to the

major processors to take up

the challenge of marketing

this fish.

Given a positive approach,

there is no reason why blue

whiting fish fingers should

not become as popular with

the children of tomorrow as

cod fingers are today.

After these trials, it is clear

that blue whiting is accep-

table to the British consumer,

both in fillet form and as fish

fingers, but that there is still

room for improvement in

quality, grading for fillet size

and presentation.

The WFA is, therefore, to

continue with its acceptability

trials. In addition to the

current expansion of the

number of frier outlets, and

catering trials in schools and

hospitals to compare accep-

tability of blue whiting fillets

and fingers with similar cod

products, it is to develop

suitable forms of frozen

presentation (such as breaded

block fillets or portion style

fillets) for sale through super-

markets and freezer centres.

PROMAC REFRIGERATED FISH HOLDS

CONSISTANT CHILLED CONDITIONS IN THE FISH HOLD
ALL THE YEAR ROUND
WHATEVER THE WEATHER
WHATEVER THE CATCH
WHATEVER THE DURATION OF THE TRIP

CUT YOUR ICE BILL BY AS MUCH AS 40%
KEEP YOUR CATCH AT THE IDEAL TEMPERATURE
GET THE BEST PRICE IN THE MARKET

IF YOU HAVE DIFFICULTY IN OBTAINING HIGH
QUALITY FLAKE ICE WE CAN SOLVE YOUR
PROBLEM WITH A PROMAC FLAKE ICE MACHINE

FOR FULL DETAILS PHONE GERRY MONAGHAN
(REVERSING CHARGES) OR WRITE TO:

MOREP LIMITED

LUDDENDEN CHAMBERS, NEW ROAD, LUDDENDEN
NEAR HALIFAX, WEST YORKSHIRE HX2 6RA
TEL: CALDER VALLEY (042283) 2721 (3 lines)
TELEX: CHAMCOM HUDD. 51458 FOR MOREP.
CABLES: MOREP, HALIFAX.

Sole agents for PROMAC NEDERLAND BV in the UK



Above: a housewife tastes fried and grilled blue whiting fillets during a WFA hall test. Of the 1,200 housewives who have tasted the fish to date, over 90 per cent rated it fair to excellent. Below: blue whiting fingers being tasted. Less than one per cent detected the pinbones.



FISH HANDLING, processing and marketing

JAMES ROBERTSON & SON
(Fleetwood) LTD.
DOCK STREET, FLEETWOOD FY7 6JH
Telephone: 2416 Telex: 57251

